MUNICIPAL QUALIFICATIONS

OEI
O'BRIEN
ENGINEERING, INC

MUNICIPAL EXPERIENCE

Celebrating over 30 years since we were founded in 1987, OEI serves our municipal customers throughout North Texas providing multidiscipline engineering, architecture, environmental, and GIS services with an emphasis on water resources.

Texas HUB Certified Firm / TxDOT SBE

obrieneng.com 972 233 2288
TBPE F-3758 TBAE #BR3993

STATEMENT OF QUALIFICATIONS: MUNICIPAL EXPERIENCE

COMPANY OVERVIEW

Founded in 1987 in North Texas, O'Brien Engineering, Inc. (OEI) was established as a specialty civil engineering firm, primarily solving surface water issues - including drainage, flooding, dam/levee, and forensics – throughout our region. Providing hydraulic/hydrologic/hydrodynamic modeling and analysis and GIS analysis remains a core strength over 30 years later. OEI has developed a solid reputation as an expert partner on surface water issues, while applying this expertise within regulatory programs with efficiency, innovation, and cost effectiveness. OEI's long history in the Dallas/Fort Worth metroplex means we have a deep understanding of our region's unique characteristics: terrain, topography, climate, soil conditions, and regulatory agencies. We leverage this knowledge, enabling us to best serve our municipal customers, providing efficient, innovative solutions to complex problems. Because of our niche services, we have served dozens of municipalities on a range of project types as both a prime and subconsultant. This project, customer, and role diversity has afforded OEI the benefit to master our project management protocols and procedures, emphasis on quality at every level, and team and customer communications.

Today, OEI has expanded our services and is a multidiscipline architecture / engineering and environmental firm with capabilities in municipal civil engineering, program management, and real estate support. We are focused on providing our municipal customers with high quality design and support services in a timely and cost-effective manner. In turn, our customers have consistently provided strong feedback, and entrusted us with follow-on contracts and task orders.

OEI's **foundation** is ownership, teamwork, continuous improvement, competence, and ethical behavior. Our purpose and passion are solving our customer's problems; we empathize with our customers, analyze and solve the problem, then deliver the solution. We truly listen to really understand the problem and then deliver a thoughtful, comprehensive solution.

MUNICIPAL BUSINESS LINES

OEI's municipal business lines are across five broad areas:

- Water Resources
- A/E Facility Design
- Real Estate Services
- Municipal Infrastructure
- Support Services

Our **water resources** experience includes serving as a prime and a subconsultant on a broad cross section of project types, giving us a unique, valuable perspective in providing solutions to our customers. Our experience includes complex hydraulic, hydrologic, and hydrodynamic modeling (1-D and 2-D), analysis, design, and reviews for a variety of projects including dam and levee safety and rehabilitation, floodplain management and administration, drainage structures and facilities, and stream/creek/slope stabilization. Our **facilities experience** is almost exclusively as a prime consultant and includes full Architecture/Engineering (A/E) design and drawing preparation – mechanical/electrical/plumbing (MEP), civil, structural, architectural, cost estimating, etc. – A/E studies and analysis, facility condition assessments, construction phase services, and design-build (D-B) RFP preparation. OEI's **real estate** capabilities include property and deed research, easement determination, title and closing services, acquisition, negotiation, mapping and GIS support, and surveying. Serving as both a prime and a subconsultant, our municipal **infrastructure** experience includes roads, utilities, parking facilities, and site development services providing full design and drawing preparation, construction administration and construction phase services, and permitting and permitting coordination. Finally, our **support services** involve a mix of experience and capabilities including staff augmentation, surveying, project management, and Independent External Peer Reviews/Independent Technical Reviews.

MUNICIPAL CUSTOMERS

OEI's first client in 1987 was a local municipality, one that we are actively serving on multiple projects today. We have served dozens of municipalities on numerous projects throughout our history. We know this stability and client service does not happen by accident nor do we take it for granted. Rather, we greatly understand our local industry, continually strive to serve

our clients' needs and expectations with excellence and are committed to maintaining our competencies and rigorously training our staff to achieve, uphold and advance our standards.

CERTIFICATION DETAILS

- Texas HUB firm
- TxDOT Small Business Enterprise (SBE)
- TBPE Firm ID F-3758
- TBAE Firm #BR3993

KEY PERSONNEL

President: Jim O'Brien, PE, CFM, F.SAME. Founder of OEI, Mr. O'Brien has 40 years of experience within the engineering and design industry; he has dedicated his career to the management, planning, design, analysis, and study of engineering and multidiscipline projects. He has served as Program Manager, Principal-in-Charge, Senior Project Manager, and Senior Hydraulic/Hydrologic Engineer as a subject matter expert on numerous municipal projects throughout North Texas. He holds a BS in Civil Engineering, Hydraulics/Hydrology emphasis, from Texas Tech University and has 30 hours toward an MS in Civil Engineering, Water Resources. Mr. O'Brien is a registered Professional Engineer (Civil), Certified Floodplain Manager, and Society of American Military Engineers (SAME) Fellow.

Vice President, Operations / Municipal Client Manager: Garry Kraus, PE, MBA. OEI's Municipal Group is led by seasoned project management and senior engineer, Garry Kraus, who has over 40 years of experience providing engineering design and management experience on projects ranging from alleys and minor roadway design to pedestrian trail design, to thoroughfare reconstruction. Many of his large, multidiscipline projects have included drainage analysis and storm water conveyance design. His knowledge of all aspects of municipal engineering design allows him to see the interrelationships that paving, drainage and utilities have on any project. He offers municipalities decades of substantial, focused experience delivering municipal civil engineering projects throughout North Texas. Mr. Kraus has an established a reputation for understanding client needs through excellent communicating initially and throughout project delivery. The Past President of the Dallas ACEC Chapter, he holds an MBA from the University of Houston and an MS in Civil Engineering/Sanitary Engineering and BS in Civil Engineering from the University of Maine. He is a registered Professional Engineer (Civil).

In addition to OEI's leadership team, **our management team includes** Professional Engineers (Civil, Mechanical, Electrical, Plumbing, Aeronautical, Environmental), GIS specialists, Certified Floodplain Managers, and support personnel.

Water Practice Leader / Senior Hydrologist: Gerardo Ocañas, PhD. Dr. Ocañas offers over 35 years of experience in project management, including projects involving other prime contractors, subcontractors that necessitate the interaction with city, county, state, and federal governments, as well as community leaders and other interested stakeholders. Dr. Ocanas mastery and fluency of the Spanish language and his ability to professionally communicate verbally and in writing has proven a powerful and vital instrument of communication in getting local people actively involved. Dr. Ocañas experience comprises many fields of civil engineering and water resources. His most recent expertise includes two-dimensional (2D) hydraulic simulation of complex drainage, river, stormwater and wastewater collection systems using leading edge technologies such as InfoWorks, SWMM, HEC computer programs, and others. He has a PhD in Civil-Water Resources Engineering, MS in Civil-Environmental Engineering, and BS in Civil Engineering.

Senior Water Resources Project Manager: Kimberly Cornett, PE, CFM, F.ASCE. Ms. Cornett brings depth and experience in with over 20 years of experience in drainage design, floodplain management, and site development throughout the varying regions and topographies of Texas. A registered Professional Engineer (Civil) and Nationally Certified Floodplain Manager, she brings passion for and understanding of infrastructure improvements combined with policy change and guidance through her role in ASCE Fort Worth Branch – Texas Session as Director. She holds an MS in Civil Engineering and Water Resources and a BS in Hydrology and Water Resources.

Senior Project Manager / Senior Environmental and Civil Engineer: Craig Bond, PE. Mr. Bond offers 40 years of experience in civil and environmental engineering project management on project types for municipalities and other governmental

agencies including railroad, roadway, site development, and on environmental cleanup sites. He provides construction management and project management of a variety of construction types. A registered Professional Engineer (Environmental), Mr. Bond has a BS in Civil Engineering.

Senior Project Manager / Senior Civil Engineer: Jim Lyles, PE. With 20 years of experience as an engineer and project manager and a strong reputation as an effective government project manager, Mr. Lyles offers a proven understanding of the requirements necessary to produce quality deliverables on schedule and within budget. His management experience ranges from civil site, transportation, aviation, utility design, architectural design, facility rehabilitation, MEP systems design, master planning, and more. A registered Professional Engineer (Civil), Mr. Lyles has an ME in Civil Engineering and a BS in Civil Engineering.

Senior Construction Manager / MEP Supervisor: Ray Collins, BA, MBA. Mr. Collins has 40 years' experience in design and construction management serving several federal clients. He has extensive proficiency in Federal/State/Local Governmental ventures responsible for project management and technical direction from conception throughout design, construction, and commissioning. In addition, Mr. Collins is directly responsible for the coordination and oversight of field activities by contractors during construction phasing to ensure alignment with project goals and objectives. As MEP Supervisor Mr. Collins is responsible for leading the efforts in coordinating and managing the MEP trades on projects. Responsibilities include estimating the scope of MEP trades during pre-construction phases, supervising the daily activities of the technical team, and ensuring that both the quality and the magnitude of production are in line with service level agreements and expectations.

Lead Mechanical Engineer: Milad Majdi, PE, LEED AP BD+C. Mr. provides a focus on incorporating sustainable and energy efficient solutions relating to his mechanical engineering and HVAC designs in the government, healthcare, and industrial sectors. His experience includes design for a variety of retrofit and new installation projects. A registered Professional Engineer (Mechanical), Mr. Majdi has an MS and BS in Mechanical Engineering and is an LEED Accredited Professional.

Senior Electrical Engineer: Tim Mueck, PE. Mr. Mueck brings 34 years of electrical engineering analysis and design experience on government, healthcare, infrastructure, and utilities projects for renovations and new facility designs, providing expertise with niche specialties such as historic preservation, photovoltaic system design, and biogas fueled electric generator installation. Mr. Mueck is a registered professional engineer with a BS in Electrical Engineering, Electrical Power specialty.

Senior Plumbing Engineer: Mike Senuta, PE, LEED AP. Mr. Senuta offers over 23 years of focused plumbing design and analysis experience on government, healthcare, commercial, and institutional projects. His experience includes all aspects of plumbing design and performance-based fire protection design for a variety of project types including universities, schools, office buildings, libraries, hospitals, state correction facilities, hotels, parking garages, recreation facilities, restaurants, municipal facilities, and manufacturing facilities. A registered Professional Engineer in Texas and seven other states and LEED Accredited Professional, Mr. Senuta has a BS in Mechanical Engineering Technology.

Senior Project Manager / Senior Architect: Jim Wiginton, AIA, RID. Mr. Wiginton has been practicing architecture for 48 years. He started his own architectural firm in 1978 and was managing partner of this firm until 2015 when he merged with another Dallas architect. During these 42 years Mr. Wiginton served as architect on buildings for cities and counties across Texas and the Southwestern United States. Other governmental clients included The State of Texas, Department of Veterans Affairs and The University of Texas. He served as Principal-in-Charge, Planner, designer, and Project Manager on over 100 governmental facilities. Mr. Wiginton joined OEI and oversees architectural design and aspects; he is a registered Architect and Interior Designer. He has a BA in Architecture.

Water Resources Task Manager: Stephen Bolster, PE, CFM. With OEI since 2013, Mr. Bolster is a Task Manager/Water Resources Engineer, responsible for developing hydraulic (steady, unsteady state) and hydrologic models and providing analysis and design for local municipalities. His expertise includes GIS analysis and database development, HEC-suite modeling, and 1D and 2D modeling. His experience includes serving in Floodplain Program Management for a local municipality and regularly coordinating with FEMA (on projects directly serving FEMA and on behalf of his clients). A Registered Professional Engineer in Texas and Certified Floodplain Manager, Mr. Bolster holds an MS in Civil Engineering and BS in Civil Engineering, Water Resources Emphasis.

SELECT MUNICIPAL EXPERIENCE

Title and Location	Client	Dates
DALLAS LOVE FIELD TOM BRANTIFF CHANNEL ENCLOSURE & TAXI QUE	City of Dallas	2018

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Storm Drainage
- Hydrology & Hydraulics
- Multidiscipline project management
- XPSWMM
- Traffic analysis, design
- Construction drawings

The City wished to enclose the Tom Braniff Channel at Love Field Airport and use the reclaimed area for taxi-queuing. With several design options possible, the City requested OEI to provide analysis on each option before proceeding into the full design process. Multiple drainage studies have indicated that area drainage systems do not meet current design standards, leaving the Tom Braniff Channel and surrounding land in a 100-year floodplain. XP-SWMM computer modeling software is being used to evaluate the hydraulic and hydrologic impacts. The plans include site plan with traffic information and landscaping concepts, bridge deck layout showing pier locations, utilities layout indicating which ones need to be protected or relocated, bridge sections and pier details. A 3D oblique-aerial rending of the proposed changes is prepared for each alternative along with elevation renderings and conceptual opinion of probable construction costs. Preliminary plans were created for this project. The City then requested that 0.471 acres be added to an existing taxi-queuing lot which would expand the total parking by 50 vehicles. Additionally, the existing portable trailer was to be relocated onto the new lot, existing power poles were to be relocated or added, and the existing drainage ditch would be covered. Several design options were considered to maximize parking, optimize traffic flow, and minimize drainage impacts. The plans included a site plan, grading and drainage plans, utility plans, electrical plans, and landscaping plans.

Title and Location	Client	Dates
CARROLLTON PROGRAM MANAGEMENT / ENGINEERING SUPPORT SERVICES	City of Carrollton	Current

Highlights

- OEI Business Lines: Water Resources, Infrastructure, Support
- Program Management
- Floodplain Management
- Technical Reviews
- FEMA Community Rating System (CRS) program
- CDC program
- Staff augmentation
- LOMR and CLOMR evaluations

OEI was selected by the City to assist in its review of development plans and its management of consultants for floodplain and drainage related projects. Floodplain projects being overseen include a citywide drainage study, a bank erosion construction project on the Elm Fork, an erosion control project on Indian Creek and a channel improvement project along Lower Dudley Branch. General drainage design projects include Broadway cross drainage, Crosby Road bridge at Cooks Creek and downtown storm drain improvements. OEI is also acting as the

City Floodplain Administrator in managing various floodplain management programs including the Community Rating System (CRS) and the Trinity River Task Force Corridor Development Certificate Program. Our responsibilities include evaluating floodplain modifications for developments that require CLOMR or LOMR submittals to FEMA.	

Title and Location	Client	Dates
SULPHUR SPRINGS DRAINAGE MASTERPLAN	City of Sulphur Springs	2017

Highlights

- OEI Business Lines: Water Resources, Infrastructure
- Hydrodynamic modeling
- Hydraulic/ Hydrologic analysis, modeling
- HEC-RAS 2D
- Downtown drainage masterplan
- Inundation mapping

Working to revitalize its downtown square and surrounding area while preserving its history, the City engaged OEI to better understand the flooding and drainage in the area and to develop a drainage masterplan. OEI developed a hydrologic model, extended the hydraulic model, assessed the capacity limitations of the existing storm sewer and overland floodplain flow elements, and developed an inundation map. To better understand the hydrodynamic complexities of a portion of Town Branch, OEI prepared a 2D model. OEI evaluated numerous detention scenarios to improve flood response and to reduce inundation in key areas. OEI then prepared a flood study and technical memos recommending various drainage improvement concepts aimed at reducing inundation, facilitating redevelopment and minimizing expense. To provide a visualization of the flood progression, OEI developed two videos, showing an animation of the results of the 2D model 100-year flood.

Title and Location	Client	Dates
DALLAS EXECUTIVE AIRPORT STREETSCAPE ENHANCEMENTS	City of Dallas	2020

Highlights

- OEI Business Lines: A/E Design, Infrastructure
- Electrical Engineering
- Civil Engineering
- Streambank erosion control
- Cost estimates
- Design plans
- Bid assistance
- Field testing and inspections

The pedestrian improvement project along the north side of Dallas Executive Airport consists of approximately 7200 LF of paved and lighted pedestrian way along Texas SH Loop 12. Stakeholders include neighborhood groups and TxDOT as this project is within several neighborhoods as well as along a state highway. The project includes accommodation for access to a natural area along the route, hence coordination with the City of Dallas Parks and Recreation department is needed in addition to the City's Public Works department. A portion of the pedestrian way parallels a stream, so the project includes stream bank erosion control.

Title and Location	Client	Dates
LAKE FOREST DAM REHABILITATION	City of Denton	2021

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Hydraulic/hydrology
- Dam rehabilitation design
- Regulatory agency coordination and permitting
- Lake dredging design

The City's Lake Forest dam had erosion and slope stability issues, and the City engaged OEI to prepare a design to rehabilitate the dam. The existing dam is approximately 550 feet long and 20 feet tall. The City has reported that significant sediment has accumulated in the lake allowing lily pads and other aquatic vegetation to dominate along the lake edges, especially at the upper reaches of the lake. OEI's design rehabilitated the dam and spillway, and dredged the lake in order to accomplish the following objectives: Improve the spillway and chute to carry the TCEQ design storm while maintaining pedestrian access across the spillway, and dissipate energy of flows before they enter the channel; Improve dam stability and reduce seepage and piping potential; and, Dredge the lake to reduce vegetation growth and allow for easier maintenance and Prepare Emergency Action Plan and Operation and Maintenance recommendations.

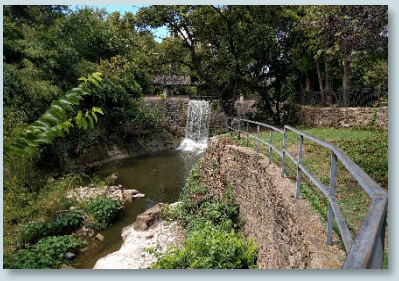
Title and Location	Client	Dates
KELLER DAM REHABILITATION	City of Keller	2013

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Dam rehabilitation
- Dam break analysis
- Inundation mapping
- Historic preservation
- Hydraulic modeling and analysis
- Flood remediation
- Bidding assistance
- Construction Phase Services
- Construction drawings

OEI provided engineering services for the rehabilitation/replacement of a small earthen embankment dam on Bear Creek, south of Bear Creek Parkway. The dam is approximately 3.5 feet in height and the crest of the dam is approximately 3 feet wide and 35 feet long. The City wished to preserve the rustic look of the dam. As the Bear Creek Road culvert was undersized and the crossing typically flooded multiple times a year and houses downstream of the Parkway had also flooded, OEI's design and the subsequent construction of the replacement dam demanded that there would be in adverse hydraulic conditions on the creek. OEI also provided construction phase services.

Title and Location	Client	Dates
HIGHLAND PARK TURTLE AND HACKBERRY CREEKS MASTER PLANNING	Town of Highland Park	2016



Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Erosion Control
- Dredging
- Bank stabilization / Streambank stability
- Hydrology/ Hydraulics
- Section 404 Permitting
- Stream geomorphology
- Recommendations to improve structures, reduce flooding and erosion
- Construction cost estimates

The Town engaged OEI on multiple projects to assess conditions and recommend repairs, armoring, and stream stability improvements for its many parks, dams, lakes, and bridges. OEI assisted the Town in a comprehensive stream assessment of the channel stability of both creeks. This included a geomorphologic field assessment of all the Town owned channel, including channels, dams, bridges, and culverts. OEI evaluated hydraulic models to correlate observed erosion that maybe caused by high velocities. OEI prepared detailed reports of the various stability problems and prepared a master plan for improvement projects to prevent further channel downcutting, repair damaged infrastructure, and construct new armoring to protect infrastructure. This masterplan included schematic designs, cost estimates, and prioritization. OEI also assisted with evaluation of dredging methods for both lakes, that included coordinating bathymetry and sediment surveys, evaluating TCEQ rules for disposal of the dredged material at the Town's closed municipal landfill, and 404 permitting.

Title and Location	Client	Dates
MINERAL WELLS GRANT ASSISTANCE FOR FEMA GRANTS: SEWAGE LIFT STATIONS / ENGINEERING AND ENVIRONMENTAL STUDIES	City of Mineral Wells	2018

Highlights

- OEI Business Lines: A/E Design, Infrastructure
- Mechanical and Electrical Engineering
- Cost estimates
- FEMA grant application
- Regulatory agency coordination
- HMGP assistance
- BCA software use
- Engineering study
- Environmental study
- Historical assignment
- Design plans
- Bid assistance
- Field testing and inspections

OEI assisted the City in completing its grant applications for the FEMA Hazard Mitigation Grant Program (HMGP) for backup generators on three sewage lift stations. After the City experienced flood damages and loss of services during 2015 and 2016 flooding, Palo Pinto County received presidential disaster declarations resulting from those floods, which made grants available through the FEMA HMGP program. Grants were available for, among other things, emergency equipment that provide a secondary source of power to a critical facility. OEI provided cost estimates for the generators and input for FEMA's Benefit Cost Analysis (BCA) software such as project useful life, project costs, value of service, recurrence

interval determination, and other benefits. After the City was awarded grants for all three generator sites, OEI was subsequently engaged to provide a comprehensive engineering study, comprehensive environmental and historical assessment, final design plans and specifications, final budget, preparation of the bid packet and contract documents, and field testing and inspections.	

Title and Location	Client	Dates
CORINTH STORMWATER MASTER PLAN, STREAM ASSESSMENTS, HYDRAULICS & HYDROLOGY ANALYSIS	City of Corinth	2015, 2017

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Hydraulic/ Hydrologic modeling and analysis
- TxDOT evaluation
- Storm Water Management Plan (SWMP)
- Peer Review
- Recommendations to improve drainage, flooding impacts

After initially being engaged by the City to perform the Storm Water Master Plan Reevaluation and Update in 2011, OEI was since retained to perform additional detailed studies and evaluations, specifically on the City's Lynchburg Creek. The projects have included a hydraulic/hydrologic analysis on the IH35E culvert evaluation to determine reasonable modifications to facilitate development (including the TxDOT IH-35 Express). OEI also evaluated a series of potential "gateway" projects on the creek. The City engaged a planner to study the area and develop potential projects at this key location. OEI used the Lynchburg Creek models to assess the projects' impacts and to determine required mitigation.

Title and Location	Client	Dates
GRAND PRAIRIE ARBOR CREEK MASTER DRAINAGE AND FLOOD STUDY	City of Grand Prairie	2012

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Master Drainage Study
- Master Flood Study
- FEMA Cooperating Technical Partner (CTP) Community Rating System (CRS) program
- Stream Geomorphology
- Bank Stability
- Section 404 Permitting

OEI was selected to prepare the Arbor Creek component of the City-wide master plan. The first phase of the project included a detailed study of the Arbor Creek floodplain and subsequent FEMA floodplain maps through the Cooperating Technical Partner (CTP) Community Rating System (CRS) program. OEI prepared an existing conditions hydrologic and hydraulic model (HEC-RAS, HEC-HMS) of the creek. New FEMA floodplain mapping data was generated and documented using FEMA's Technical Data Service Notebook (TSDN). A second phase of the project involved preparation of a Master Drainage Study for Arbor Creek. This included an

analysis of current and future watershed development, scour, erosion, road overtopping, storm sewer outfalls, and stream geomorphology. OEI performed preliminary design of improvements to address road overtopping, channel downcutting, stable bank and valley slopes, and localized scour and erosion. These preliminary designs included consideration of Section 404 permitting, costs, future watershed development, and the stream geomorphology.	

Title and Location	Client	Dates
DALLAS TRINITY WATERSHED MANAGEMENT EROSION CONTROL GROUP 3	City of Dallas	2018

To resolve bank stabilization and erosion control issues at four locations and at townhomes or apartment complexes along creeks that have incised and experienced bank erosion, OEI provided designs and will provide construction phase services. Gabion walls with tie-backs will be used and all the walls will be installed in jurisdictional waters of the US Nationwide Permit 13 – Bank Stabilization applies. The erosion and scour threatened infrastructure and some buildings. At one location, an unnamed tributary is dammed at the downstream end, which is causing ponding and an accumulation of sediment. OEI provided notes on the plans for the contractor to determine the presence of fish in the ponded portion of the channel and to relocate as appropriate.

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Hydraulics & Hydrology
- Bank Stabilization
- Nationwide Permit 13
- Construction drawings
- Construction Phase Services

Title and Location	Client	Dates
FARMERS BRANCH COOKS CREEK CHANNEL IMPROVEMENTS & FEMA GRANT SUPPORT	City of Farmers Branch	2020

The City selected OEI to prepare plans for improvements to a 2200 linear feet reach of Cooks Creek between Bee Street and Valwood Parkway. The primary purpose of the project is to replace the distressed channel walls with a properly founded wall that will resist lateral movement currently damaging the existing channel bottom and adjacent utilities. The Texas Department of Emergency Management (TDEM) selected the City to submit the project to FEMA for the Hazard Mitigation Grant Program (HMGP) to help relieve said flooding. The City then requested that OEI prepare the Benefit-Cost Analysis (BCA) in the required FEMA software, BCA reports, and assist completion of relevant portion of the grant application for the HMGP submittal. OEI evaluated a combination of improvements and achieved a

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Hydraulic/hydrology analysis
- FEMA coordination
- TDEM coordination
- Benefit-Cost Analysis (BCA)
- Hazard Mitigation Grant Program (HMGP)
- Channel improvements
- Bank stabilization
- Construction documents
- Construction period services

Benefit-Cost Ratio (BCR) of greater than 1.0. OEI then prepared relevant portions of the grant application and prepared a report to support the BCA for TDEM and FEMA review. Once TDEM & FEMA reviews are complete, OEI will proceed with design of the channel improvements.	

Title and Location	Client	Dates
PLANO CHISHOLM TRAIL RETAINING WALL DESIGN	City of Plano	2019

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Hydraulic/Hydrologic
- Retaining wall design
- Construction drawings
- Permitting assistance
- Bank stabilization
- Bidding assistance
- Construction Phase Services

OEI is providing design services for the preparation of bid and construction plans for the replacement of a retaining wall along Spring Creek running parallel to a portion of Chisholm Trail. The existing wall is constructed of stacked rock gabion baskets and is approximately 15' high and 200' long. The stream is experiencing downcutting, which has caused exposure of the wall base. OEI analyzed velocities for various design storms as well as analyzed potential for undercutting over a 50-year design life. OEI's services include assisting the City in determining required agency review (Nationwide Permit 13 – Bank Stabilization applies) and preparing applications/letters/plan sets to be distributed to any entity for review purposes.

Title and Location	Client	Dates
STOCKYARDS STORMWATER MANAGEMENT PLAN, DESIGN	City of Fort Worth	2016

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Stormwater management plan
- FEMA coordination
- Regulatory permitting (LOMR, LOMR-f)
- FEMA CTP program
- Erosion Control
- Hydraulics and Hydrology

OEI's client constructed a hotel at 26th and Main Streets, in the heart of the historic Stockyards. The site was completely within the Marine Creek 100-year floodplain and a portion within the floodway. OEI evaluated the upstream and downstream impacts due to changes in hydrology and hydraulics. To avoid impacting adjacent properties, modifications to the City owned and maintained channel were necessary, resulting in the project needing to meet City requirements in plans, specifications and contracting. The effective FEMA Marine Creek model dated to the late 1970s and had not been fully updated to reflect bridge and other floodplain changes. A floodplain model had been developed for Marine Creek, which had updated most of the floodplain structures, resulting in a lower BFE at the site. OEI worked with the City to allow this model to be used as the effective model for the

project, with the understanding that the model would be part of a future CTP project. OEI provided hydraulic analysis, hydrologic analysis, detention analysis and assessment, floodplain delineation, flood study, request for Letter of Map Revision from FEMA, Storm Water Management Plan, channel wall construction plans, CFA development, regulatory review assistance (FEMA and USACE), and construction administration. After construction was completed, an LOMR-F was obtained from FEMA based on the effective floodplain elevations.	

Title and Location	Client	Dates
IRVING PIONEER DRIVE EXTENSION HYDROLOGIC ASSESSMENT	City of Irving	2018

OEI provided the downstream assessment and roadway drainage design for the Pioneer Drive extension, the improvements of which will drain into Wildbriar Lake, which is formed by an earthen dam and has an approximate drainage area of 100 acres. The drainage area is in a rapidly developing area, so OEI assessed the effects the roadway improvements (hydrologic assessment) as well as other development in the area would have on the lake and its ability to convey large flood events.

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Hydraulics & Hydrology
- Dam evaluation
- Downstream assessment

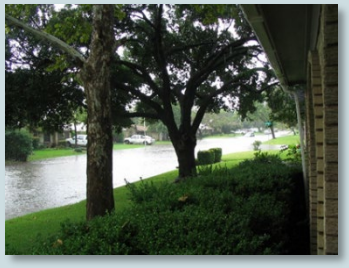
Title and Location	Client	Dates
HIGHLAND PARK TOWN HALL RENOVATION, FLOODPROOFING, PEDESTRIAN TUNNEL	Town of Highland Park	2015

OEI was engaged on this high-profile renovation and expansion project that included reducing flooding potential of the Town Hall facility by adding a high flow conveyance relief tunnel at Lexington Avenue and to floodproof the 100+ year old facility. A tunnel designed at Lexington provided a pedestrian walkway (10'x8'x80') and reduced potential flood elevations during non-flood conditions. Waterproof lighting was specified inside the tunnel along and flood warning signs at tunnel entrances and along the sidewalks leading to the tunnel. A FEMA Letter of Map Revision (LOMR) was also prepared/obtained.

Highlights

- OEI Business Lines: A/E Design, Water Resources, Infrastructure
- Facility renovation, facility design
- Multidiscipline management
- FEMA coordination
- LOMR
- Hydraulic/ Hydrologic modeling and analysis
- Construction drawings
- Construction Period Services
- Floodproofing
- Facility Condition Assessment
- Pedestrian tunnel design (culvert design)
- Flood damage reduction

Title and Location	Client	Dates
GARLAND DOWNTOWN DRAINAGE MASTERPLAN	City of Garland	2011



For multiple drainage masterplans, OEI evaluated existing conditions and developed solutions at four different sites/projects in downtown Garland. The Sixth and Walnut system consists of nearly 250 inlets in nine interconnected pipe systems which discharge into Mills Branch just to the north of the project development. The initial project phase steady-state analysis indicated that sporadic elements of the drainage system were insufficiently sized resulting in a large excess of flow in the street. The final phase included unsteady flow analysis of the entire system using XPSWMM software. Curtis Drive and LaJolla Drive projects involved residential subdivisions with inadequate local subsurface systems and downstream surface systems, resulting in expansive floodwater pooling and some house flooding. Hydrodynamic (XPStorm) modeling was used in both cases due to the flat and sometimes adverse hydraulic gradelines. The O'Banion Road project involved residential stormwater systems, Rowlett Creek backwater and an undersized tributary culvert. In all cases, XPStorm was used to evaluate hybrid solution alternatives, taking advantage of existing and proposed detention at various points in the systems as a means to optimize the required sizes and quantities of improvements and overall reduction of expected construction costs.

Highlights

- OEI Business Lines: Water Resources, A/E Design, Infrastructure
- Hydrodynamic modeling
- Hydraulics and Hydrology
- Drainage Masterplan
- Steady and Unsteady Flow
- Produced a solution that was economic and innovative

Title and Location	Client	Dates
DALLAS ALLEY REHABILITATIONS	City of Dallas	2005

OEI provided the design of alley rehabilitation projects at Mimosa/Aberdeen and Meadow/Glendora including roadway design, pavement design, drainage and storm sewer design, and development of sanitary sewer and water utility plans. The project involved franchise utility identification and coordination, contract documentation services, contract administration, and CAD plans. OEI prepared project cost estimating (Opinions of Probable Cost) for each alley.

Highlights

- OEI Business Lines: A/E Design, Infrastructure
- Engineering design
- Bidding assistance
- Cost estimates
- Construction Phase Services

SELECT MIXED EXPERIENCE

Title and Location	Client	Dates
USACE FORT WORTH DISTRICT WATER CONTROL MANUALS (TEXAS)	USACE	2019

Highlights

- OEI Business Line: Water Resources
- Water Control Manual Development
- Hydraulic Structures
- GIS

OEI updated the Water Control Manuals for five of the 28 lakes/dams operated by the USACE Fort Worth District. The manuals provide the water control plan describing how the dam is to be operated regarding flood control, hydroelectric power, and emergency action plans (EAPs). The water control chapter is produced by USACE. The remaining chapters provide a description and history of the dam project as well as pertinent data about the dam: watershed characteristics, data collection and communication networks, and hydrologic forecasts. OEI was responsible for authoring these chapters, creating graphs, plots, maps, tables, research, editorial support, and preparation documents. To produce plates relating to hydrologic data, OEI utilized ArcGIS, including the latest PMP/PMF report produced by USACE for the area, rain and streamflow gage locations, the hydrologic network, and travel times. Other plates included hydraulic data for the dam such as outlet works rating curves, spillway rating curves, lake evaporation curves, area and capacity curves, spillway design flood, and elevation capacities. OEI updated historical watershed information with data including major recorded storms and floods, monthly and annual inflow volumes, monthly inflow frequencies, historical evaporation and precipitation data, water quality sampling, area population growth, agricultural production, and employment numbers.

Title	Client	Dates
SURGICAL SUITE REPLACEMENT (TEMPLE, TEXAS)	Central Texas VAMC	2021

Highlights

- OEI Business Lines: A/E Design, Support
- Full Design: Architectural, Mechanical, Electrical, Plumbing, Civil, Structural, Interior Design, Cost Estimating, Environmental, Value Engineering, Life Safety, Landscaping
- Construction Phase Services
- Sustainable Design

OEI was engaged by the Temple VA to evaluate potential solutions to address VA objectives as the facility has a surgical suite in Building 204 that was insufficient for their current uses: insufficient OR suites and many of the existing suites are too small per current design standards. Furthermore, there is insufficient storage and PACU space to support the VAs projected throughput. OEI designed a new Surgical

Suite and renovations of existing adjacent spaces and related services in an 19,000SF – 23,000SF area. The existing surgical suite remained in operation during the construction period. Project upgraded utilities, especially electrical service to the suite and comply with current VA specifications, guidelines, design alerts, manuals, details, criteria, instructions, procedures and standards. Required expansion of Fire Alarm and sprinklers for compliance with Life Safety concerns. Existing surgical suite contains eight ORs and new suite will contain 10 ORs.	

Title and Location	Client	Dates
FACILITY CONDITION ASSESSMENTS OF DEFENSE LOGISTICS AGENCY FACILITIES (SAN DIEGO AREA, CALIFORNIA)	USACE/DLA	2018

Highlights

- OEI Business Lines: A/E Design, Support
- Facility Condition Assessments
- Multidiscipline team
- BUILDER assessments
- OEI coordinated 16 assessors in the field
- 30 buildings and facilities
- Assessments included buildings, roofs, infrastructure (civil components), plumbing, electrical, HVAC, fire protection, architectural components, mechanical
- Completed the assessments in half the time, in part due to innovative approaches to roof assessments, resulting in a patented device

Under a USACE Fort Worth District IDIQ contract, OEI led a multidiscipline A/E team on-site to provide a Facility Condition Assessment (FCA) of over 30 buildings and associated facilities at three Defense Logistics Agency (DLA) compounds in the San Diego area. The OEI team assessed approximately 1,000,000 square feet of buildings and over 20 acres of paving and fencing. Providing logistical support to DoD agencies, the facilities include fuel storage, transmission, industrial plants, distribution facilities, warehouses for bulk storage and material distribution and reutilization, and administrative office space. BUILDER Sustainment Management System and its field tool BUILDER Remote Entry Database (BRED) was used for building the facility inventory and documenting the facility conditions. BRED output was used for quality control to ensure all facilities were assessed and that the assessments were internally consistent and correctly documented. Life safety issues were noted on special forms for more rapid resolution. The OEI team ensured compliance with regulations and protocols, including Antiterrorism and Operation Security and the safety manual.

Title and Location	Client	Dates
USACE FORT WORTH DISTRICT REAL ESTATE MATOC, TITLE SERVICES (TEXAS)	USACE	2017 – 2021

Highlights

- OEI Business Line: Real Estate
- Property/ Title Research
- Real Estate Support

Under this $40M Real Estate Multiple Award Task Order Contract (MATOC) managed by USACE for the Department of Homeland Security's Customs and Border Protection, OEI is one of two awarded firms. The MATOC provides for title research, appraisals, surveys, negotiation services, escrow support, land mapping,

land research, Declaration of Taking preparation. The first Task Order included providing Title Services on 237 tracts of land within Hidalgo County.

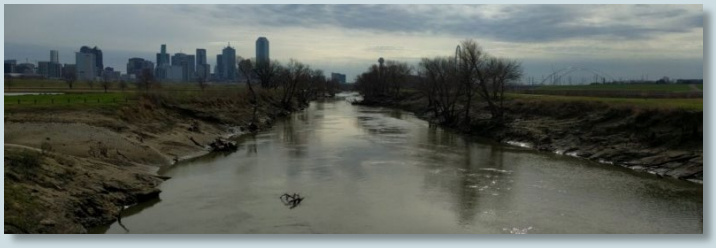
Title and Location	Client	Dates
CONSTRUCTION PHASE SERVICES: FACILITIES MANAGEMENT AND ENGINEERING FIELD OPERATIONS FACILITIES (ALBAMA, LOUISIANA, MISSISSIPPI, TEXAS)	USACE / CBP	2013-2014

As a subconsultant, OEI provided construction phase services and professional support services to Customs and Border Protection, Facilities Management and Engineering (FM&E), Field Operations Facilities (FOF), and Program Management Office (PMO). Responsibilities included providing project management support to the FOF and PMO Regional Project Management Branches and the Design Analysis and Engineering Branch for specific Land Ports of Entry (LPOEs). Subject Matter Expert consulting, facility analysis, project coordination, analysis and policy development, project completion standard operating procedure, design standard development, and maintenance of the facility database (TRIRIGA) were part of day-to-day activities. Projects required on-site construction inspection for facilities including Laredo Federal Inspection Services/General Aviation Facility, Santa Teresa Station (El Paso), Rio Grande Valley Sector Facility (Edinburg), Tornillo Land Port of Entry, and Birmingham Federal Inspection Services facility.

Highlights

- OEI Business Lines: A/E Design, Support
- Construction Phase Services
- On-Site Construction Inspection and Guidance
- On-Site Construction Quality Assurance Inspection
- On-Site review of contract documents and submittals
- On-Site review of contractor submitted shop drawings, submittals for conformance
- On-Site evaluation of construction methods and materials
- On-Site evaluation of construction progress
- On-Site evaluation conformance with codes

Title and Location	Client	Dates
FEMA HAZARD MITIGATION TECHNICAL ASSISTANT PROGRAM GRANT REVIEWS	FEMA	2016



OEI provided technical assistance and support to FEMA in performing reviews of Hazard Mitigation Assistance (HMA) program applications. Conducted cost effectiveness and feasibility reviews on primarily flood risk reduction reviews, for grant applications. Conducted feasibility reviews, benefit/cost analysis reviews, and summary reporting. Benefit Cost Analysis (BCA) reviews involved confirming that the documentation provided ensured all requirements of guidance was met; evaluation of the general analysis approach including a review of principal BCA parameters, such as hazard data, data regarding the facilities to be protected by the project, historical losses, and the useful life and projected level of protection for the project. The BCA reviews were performed within the standards of the FEMA BCA Tool or other FEMA approved methodology. The Summary reporting included conclusions from the programmatic, feasibility, and BCA reviews, including a verified benefit-cost ratio and all supporting documentation.

Highlights

- OEI Business Lines: Water Resources, Infrastructure, Support
- Flood Hazard / Risk Reduction Reviews
- Hazard Mitigation Assistance (HMA)
- Benefit Cost Analysis (BCA) reviews
- FEMA
- Grant reviews

OEI

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